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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/084,356	02/28/2002	Michiaki Sakamoto	8004-1003	5588
466	7590	11/07/2003	EXAMINER	
YOUNG & THOMPSON			WANG, GEORGE Y	
745 SOUTH 23RD STREET 2ND FLOOR			ART UNIT	
ARLINGTON, VA 22202			PAPER NUMBER	

2871

DATE MAILED: 11/07/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/084,356	SAKAMOTO ET AL.	
	Examiner	Art Unit	
	George Y. Wang	2871	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 August 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 and 16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 and 16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 February 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☒ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|----------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Priority

1. Acknowledgment is made of applicant's claim for foreign priority based on an application filed in Japan on February 28, 2001. It is noted, however, that applicant has not filed a certified copy of the JP-2001-055229 application as required by 35 U.S.C. 119(b).

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 1-2 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsuda et al. (U.S. Patent No. 5,936,688, from hereinafter "Tsuda") in view of Moon (U.S. Patent No. 6,543,901).

4. Regarding claims 1 and 16, Tsuda discloses a reflector (fig. 3, ref. 15) for a reflection-type LCD device comprising a roughened surface having a protrusion pattern (fig. 1c, ref. 12b) giving inclination angle (fig 2a-2e) to the surface according to a specific distribution where a first component with an inclination angle value of 0° is 15% or less in area (col. 7, lines 41-45) and a second component with an inclination is 50% or greater in area (col. 6, lines 51-55).

However, the reference fails to specifically disclose a protrusion pattern giving inclination angle to the surface according to a specific distribution where a second component with an inclination value from 2° to 10°.

Moon discloses a reflector having a protrusion pattern giving inclination angle to the surface according to a specific distribution where a second component with an inclination value from 2° to 10° (col. 8, lines 4-13).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have a reflector for a reflection-type LCD device comprising a second component with an inclination value from 2° to 10° that is 50% or greater in area since one would be motivated to prevent the occurrence of interference (col. 8, lines 7-8). This would not only improve light efficiency for obliquely inputted light but also optimizes brightness and display quality (abstract; col. 2, lines 44-55).

5. As to claim 2, Tsuda discloses a reflector as recited above where the specific distribution of inclination angle values of the roughened surface has an average value within a range from 2° to 6° (fig 2a-2e).

6. Claims 3-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsuda and Moon in view of Nakai (U.S. Patent No. 6,219,119).

Tsuda and Moon disclose the reflector as recited above having a bumpy layer corresponding to the bumpiness of the protrusions, however, the references fail to specifically disclose depressed areas between adjoining protrusions, depressed area having a geometric shape selected from a group consisting of triangle, rectangle, or ellipse, and protrusion dimensions that satisfy $0.5 \leq (D/W) \leq 1.0$, $0.5 \leq (d/L) \leq 0.2$, and $(D/d) \leq 3$ with a maximum value of height.

Nakai discloses reflector as recited above having a bumpy layer corresponding to the bumpiness of the protrusions, however, the references fail to specifically disclose depressed areas (fig. 8, ref. 4) between adjoining protrusions (fig. 8, ref. 1), depressed area having an elliptical and rectangular geometric shape (fig. 3), rectangle, or ellipse, and protrusion dimensions that satisfy $0.5 \leq (D/W) \leq 1.0$, $0.5 \leq (d/L) \leq 0.2$, and $(D/d) \leq 3$ with a maximum value of height (fig. 13; col. 10, lines 10-48).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have depressed areas between adjoining protrusions, depressed area having a geometric shape selected from a group consisting of rectangle or ellipse,

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and protrusion dimensions that satisfy $0.5 \leq (D/W) \leq 1.0$, $0.5 \leq (d/L) \leq 0.2$, and $(D/d) \leq 3$ with a maximum value of height since one would be motivated to improve the light-condensing capability of the reflector (col. 10, lines 30-32). Ultimately, a wide viewing angle and strong reflection can coexist to produce a quality image (col. 3, lines 57-60).

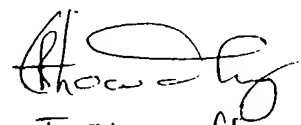
Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to George Y. Wang whose telephone number is 703-305-7242. The examiner can normally be reached on M-F, 8 am - 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert H. Kim can be reached on 703-305-3492. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

gw
October 15, 2003


T. Chowdhury
Primary Examiner